

THE PUBLICATIONS
OF THE
SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA.

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All the printed volumes and maps in stock have been transferred by the Board of Commissioners to the Department of Internal Affairs, where the sales thereof will hereafter be conducted.

Communications relating to the work of the Survey should be addressed to J. P. Lesley, State Geologist, No. 1008 Clinton street, Philadelphia, and those intended for the Board of Commissioners, to William A. Ingham, Secretary, No. 907 Walnut street, Philadelphia.

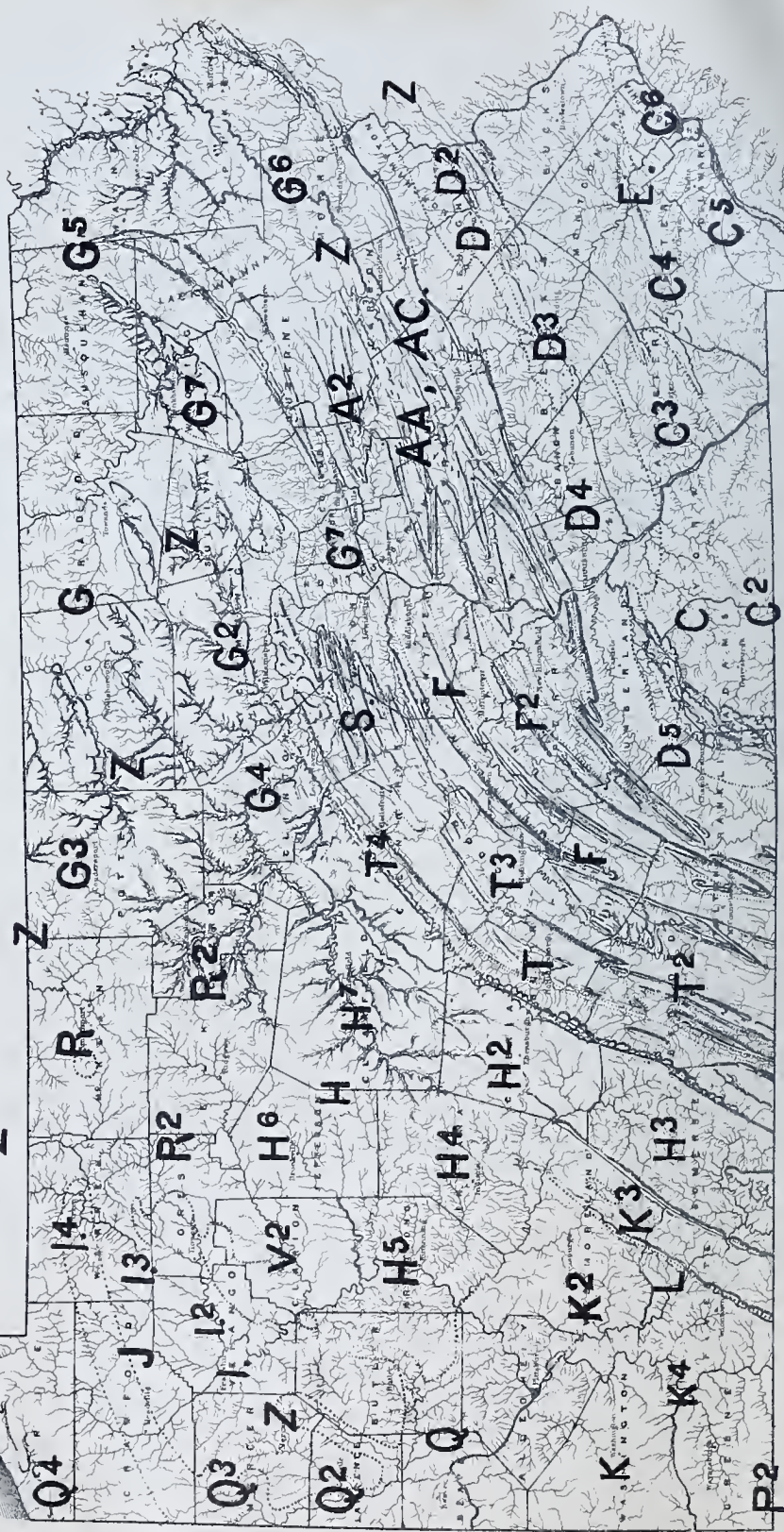
All letters and orders concerning the purchase of Reports and remittances for the same, should be addressed to,

J. SIMPSON AFRICA,
Secretary of Internal Affairs,
Harrisburg, Pa.

March 1, 1885.

Geological Reports of Pennsylvania, 1874-1884.

Z



P.—Coal Flora. B, B², M, M², M³,—Chemical Analyses.
N.—Levels. O, O²,—Catalogue of Specimens.

THE PUBLICATIONS

OF THE

SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA.

FROM 1874 TO 1885.

Reports have been issued by the Board of Commissioners, and the prices thereof fixed in accordance with the law authorizing their publication, as follows:

MISCELLANEOUS REPORTS.

A. A history of the FIRST GEOLOGICAL SURVEY of Pennsylvania from 1856 to 1858, by J. P. Lesley. With the annual reports of the Board to the Legislature for 1874 and 1875. 8°, pp. 226, 1876. Price in paper \$0 25, postage \$0 06.

B. Report on the MINERALS of Pennsylvania, by F. A. Genth; and on the hydro-carbon compounds, by S. P. Sadtler. With a reference map of the State. 8°, pp. 206, 1875. Price in paper \$0 50, postage \$0 08; in cloth \$0 75, postage \$0 10.

B 2. Report on the MINERALS, by F. A. Genth, continued from page 207 to page 238. 8°, in paper cover, pp. 31, 1876. (Bound with B.)

M. Report of CHEMICAL ANALYSES in 1874-5, in the Laboratory at Harrisburg, by A. S. McCreath. 8°, pp. 105, 1875. Price in paper \$0 50, postage \$0 05.

M 2. Report of CHEMICAL ANALYSES in 1876-8, by A. S. McCreath: Classification of coals, by P. Frazer; Fire-brick tests, by F. Platt; Dolomitic limestone beds, by J. P. Lesley; Utilization of anthracite slack, by F. Platt; Determination of Carbon in iron or steel, by A. S. McCreath. With one folded plate (section at Harrisburg) and four page plates. 8°, pp. 438, 1879. Price \$0 65, postage \$0 18.

M 3. Report of CHEMICAL ANALYSES in 1879-80, by A. S. McCreath. With a reference map of 93 iron ore mines in the Cumberland valley. 8°, pp. 126, 1881. Price \$0 40, postage \$0 10.

N. Report on the LEVELS above tide of railroad, canal and turnpike stations, mountain tops, &c., in and around Pennsylvania, in 200 tables, by C. Allen. With a map. 8°, pp. 279, 1878. Price \$0 70, postage \$0 15.

O. CATALOGUE of specimens collected by the survey (No. 1 to No. 4,264) by C. E. Hall. 8°, pp. 217, 1878. Price \$0 40, postage \$0 10.

O 2. CATALOGUE (continued from No. 4,265 to No. 8,974); also catalogue of fossils (pp. 231 to 239.) 8°, pp. 272, 1880. Price \$0 40, postage \$0 12.

O 3. CATALOGUE (continued from No. 8,975 to No. .) 8°, pp. , 1885. Price \$, postage \$. (*Waiting to go to press.*)

P. Report on the COAL FLORA of Pennsylvania and the United States, Vols. 1 and 2, (bound together,) by L. Lesquereux. 8°, pp. 694, 1880. Price \$0 80, postage \$0 28.

P. Report on the COAL FLORA of Pennsylvania and the United States, Vol. 3, with 24 double page plates (lithographed) of coal plants, to accompany P. Vols. 1 and 2. 8°, pp. 283, 1884. Price \$1 20, postage \$0 18.

(**P.**) ATLAS of 87 double page plates (lithographed) of coal plants, to accompany P. Vols. 1 and 2. 8°, 1879. Price \$3 35, postage \$0 22.

P 2. Report on Permo-Carboniferous plants from W. Va. and Greene county, Pennsylvania, by W. M. Fontaine and I. C. White. With 38 double page plates (lithographed.) 8°, pp. 143, 1880. Price \$2 25, postage \$0 17.

P 3. Description of *Ceratiocaridæ*, by C. E. Beecher; and of *Eurypteridæ*, by James Hall. With 8 plates. 8°, pp. 39, 1884. Price \$0 60, postage \$0 07.

Z. Report on the TERMINAL MORaine across Pennsylvania, by H. C. Lewis; including extracts from descriptions of the Moraine in New Jersey, by G. H. Cook, and in Ohio, Kentucky, and Indiana, by G. F. Wright. With a map of the State, 18 photographic views of the moraine, and 32 page plate maps and sections. 8°, pp. lvi and 299, 1884. Price \$1 40, postage \$0 17.

GRAND ATLAS, Div. I, Pt. I, 1885, port-folio containing maps of 56 counties and parts of counties (scale 2 miles to 1 inch) on 49 sheets (26"×32"). The maps of the remaining counties will be published in Part II. These maps are duplicate prints on heavy paper of the county maps contained in the reports of progress. Price \$7 25, expressage from Harrisburg, \$

ANTHRACITE REGION.

A 2. Report on the causes, kinds, and amount of WASTE in mining anthracite, by F. Platt; with a chapter on METHODS of mining, by J. P. Wetherill. Illustrated by 35 figures of mining operations, a plan of the Hammond breaker, and a specimen sheet of the maps of the Anthracite coal fields. 8°, pp. 134, 1881. Price \$1 10, postage \$0 12.

AC. Report on MINING METHODS, &c., in the anthracite coal fields, by H. M. Chance. Illustrated with 54 plates and 60 illustrations in the text. 8°, pp. 574, 1883. Price \$1 40, postage \$0 25.

AC. ATLAS containing 25 plates illustrating coal mining, to accompany Report AC, by H. M. Chance. 8°, 1883. Price \$1 40, postage \$0 12.

AA. First report of progress of the anthracite survey; PANTHER CREEK BASIN, by C. A. Ashburner; with a determination of the latitude and longitude of Wilkes Barre and Pottsville, by C. L. Doolittle; and a theory of stadia measurements, by A. Winslow. 8°, pp. 407, 1883. Price \$0 58, postage \$0 18.

(**AA.**) ATLAS of SOUTHERN anthracite field, Part I, containing 13 sheets: 3 mine sheets, 3 cross section sheets, 3 columnar section sheets, 1 topographical map sheet, and 1 coal bed area sheet, relating to the PANTHER CREEK BASIN; 1 general map of the anthracite region, and 1 chart of anthracite production from 1820 to 1881. 8°. 1882. Chas. A. Ashburner, Geologist in charge; A. W. Sheaffer and Frank A. Hill, Assistant Geologists. Price \$1 50, postage \$0 12.

(**AA.**) ATLAS of WESTERN MIDDLE anthracite field, Part I, containing 11 sheets: 4 mine sheets between Delano and Locust Dale, 3 topographical sheets between Quakake Junction and Mount Carmel, and 4 cross section sheets. 8°,

NOTES.—Single sheets of the Anthracite Survey, with the exception of those in the Panther Creek atlas, can be purchased by addressing Chas. A. Ashburner, Geologist in Charge, 907 Walnut street, Philadelphia. See page 9.

1884. Chas. A. Ashburner, Geologist in charge; A. W. Sheaffer and Bard Wells, Assistant Geologists. Price \$1 65, postage \$0 11.

(AA.) ATLAS of NORTHERN anthracite field, Part I, containing 6 mine sheets between Wilkes Barre and Nanticoke, 3 cross section sheets, and 4 columnar section sheets. 8^o, 1885. Chas. A. Ashburner, Geologist in charge; Frank A. Hill, Assistant Geologist. Price \$, postage \$.

(AA.) GRAND ATLAS, Div. II, Pt. I, 1884, port-folio containing 26 sheets (26"×32") as follows: 13 sheets Atlas Southern Anthracite Field, Part I, 11 sheets Atlas Western Middle Anthracite Field Part I, 1 sheet photo views of plaster models in Western Middle and Southern Fields, and 1 specimen sheet Report A 2. Price \$4 25, expressage from Harrisburg \$.

For anthracite coal in SULLIVAN county, see G 2.

For Conglomerate beds near Carbondale, Pittston, &c., see G 5, G 7.

For Utilization of anthracite slack, see M 2.

For single sheets see page 9.

BITUMINOUS COAL FIELDS AND SURROUNDING AREAS.

H. First report on CLEARFIELD and JEFFERSON counties, by F. Platt. With 8 maps, 2 sections, and 139 cuts in the text. 8^o, pp. 296, 1875. Price unbound \$1 50, postage \$0 13 (*For second report see H 6, H 7.*)

H 2. Report on CAMBRIA county, by F. & W. G. Platt. With 4 maps and sections and 84 cuts in the text. 8^o, pp. 194, 1877. Price \$1 00, postage \$0 12.

H3. Report on SOMERSET county, by F. & W. G. Platt. With 6 maps and sections and 110 cuts in the text. 8^o, pp. 348, 1877. Price \$0 85, postage \$0 18.

H 4. Report on INDIANA county, by W. G. Platt. With a colored geological county map and 87 cuts in the text. 8^o, pp. 316, 1878. Price \$0 80, postage \$0 14.

H 5. Report on ARMSTRONG county, by W. G. Platt. With a colored geological county map, and 58 cuts in the text. 8^o, pp. 338, 1880. \$0 75, postage \$0 16.

H 6. Second report on JEFFERSON county, (*See H above,*) by W. G. Platt. With a colored geological county map, and 57 cuts in the text. 8^o, pp. 218, 1881. Price \$0 60, postage \$0 12.

H 7. Second report on CLEARFIELD county, (*see H above,*) by H. M. Chance. With a colored geological county map, an outcrop map of the Houtzdale basin, and 58 cuts in the text. 8^o, pp. 197, 1884. Price \$0 85, postage \$0 11.

I. Report on VENANGO county, by J. F. Carll. The geology around Warren, by F. A. Randall. Notes on the comparative geology of N. E. O., N. W. Pa. and W. N. Y., by J. P. Lesley. With one small map of the Venango oil region; one small map of the region south and east of Lake Erie; one long section of the rocks at Warren; and 7 cuts in the text. 8^o, pp. 127, 1875. Price in paper, \$0 60, postage \$0 05.

I 2. Report of oil well records and levels in VENANGO, WARREN, CRAWFORD, CLARION, ARMSTRONG, BUTLER, &c., by J. F. Carll. 8^o, pp. 398, 1877. Price \$0 60, postage \$0 18.

I 3. Report on the VENANGO, WARREN, CLARION, and BUTLER OIL REGIONS; descriptions of rig, tools, &c.; survey of the Garland and Panama conglomerates, &c.: discussion of preglacial and post glacial drainage; by J. F. Carll. With 23 page plates, and an atlas. 8^o, pp. 482, 1880. Price (of volume and atlas together) \$2 30, postage \$0 30.

(I 3.) ATLAS of 22 sheets. Map of Venango county, colored geologically; map of lower oil field (Butler, Armstrong and Clarion) in 2 sheets; 3 local contour maps at Franklin, Titusville, and Spring creek; two maps of N. W. Pennsylvania showing the past and present drainage; long section across W. Pennsylvania; vertical section of the formations from the Upper Coal Measures down to the bottom of the Devonian; diagram map and section of Third sand; profile section from Meadville, S. W.; 5 sheets of grouped oil well sections; 5 sheets of working drawings for well boring, &c.; diagram of daily rate of drilling six wells at Petrolia. (*Sold only with the report.*)

I 4. Report on WARREN county, by J. F. Carll. With a colored geological county map, a map of the Warren oil region, and 2 sheets of oil well sections. 8°, pp. 439, 1883. Price \$1 12, postage \$0 20. (*Note. The first 147 pages of this book contain oil well records; see under Petroleum Fields below.*)

J. Report on the OIL REGION, by H. E. Wrigley; map and profile of line of levels through Butler, Armstrong, and Clarion, by D. J. Lucas; map and profile of Slippery Rock creek, by J. P. Lesley. 5 maps and sections, a plate and 5 cuts. 8°, pp. 122, 1875. Price in paper \$0 75, postage \$0 06.

K. Report on GREENE and WASHINGTON counties, by J. J. Stevenson. With two county maps. (Showing the calculated local depths of the Pittsburgh and Waynesburg coal beds beneath the surface,) and 3 page plates of general sections. 8°, pp. 419, 1876. Price, in paper, \$0 65, postage \$0 16. (*Note.—Since the publication of this book, two colored geological county maps have been published, and will be found in pocket of volume K 3 described below.*)

K 2. First report on FAYETTE, WESTMORELAND, and S. E. ALLEGHENY counties, (*i. e.* west of Chestnut ridge,) by J. J. Stevenson. With 3 colored geological county maps, and 50 cuts in the text. 8°, pp. 437, 1877. Price \$1 40, postage \$0 20.

K 3. Second report on FAYETTE and WESTMORELAND counties, (the Lionier valley,) by J. J. Stevenson. With 4 page plates, and 107 cuts in text. 8°, pp. 331, 1878. Price \$1 40, postage \$0 16. (*Note.—In a pocket in this volume will be found the colored geological maps of Greene and Washington counties, alluded to above.*)

K 4. Pt. I, Report on the MONONOAHELA river COAL MINES, from the West Virginia State line to Pittsburgh, (including some on the Youghiogheny and other streams,) by J. Sutton Wall. With a map of the region in a pocket, 12 heliotype pictures, and 26 page plates. 8°, pp. 231, 1884. Price \$1 15, postage \$0 14.

L. Report on the YOUGHIOGHENY coke manufacture, by F. Platt; Notes on the coal and iron ore beds, by C. A. Young; Report on methods of coking, by J. Fulton, (*See G* below;) Report on the use of natural gas in the iron manufacture, by J. B. Pearse and F. Platt; The Boyd's hill gas well at Pittsburgh, by J. P. Lesley. With a map of the coke region, two folded plates of coke ovens, and page plates and cuts in the text. 8°, pp. 252, 1876. Price \$1 00, postage \$0 13.

Q. Report on BEAVER, N. W. ALLEGHENY, and S. BUTLER counties, by I. C. White. With 3 colored geological county maps, and 21 page plates of sections. 8°, pp. 337, 1878. Price \$1 40, postage \$0 20.

Q 2. Report on LAWRENCE county, and special Report on Correlation of the Pennsylvania and Ohio coal beds, by I. C. White. With a colored geological county map, and 134 cuts in the text. 8°, pp. 336, 1879. Price \$0 70, postage \$0 15.

Q 3. Report on MERCER county, by I. C. White. With colored geological county map, and 119 cuts in the text. 8°, pp. 233, 1880. Price \$0 60, postage \$0 11.

Q 4. Report on CRAWFORD AND ERIE counties, by I. C. White. With two colored geological county maps, and 107 cuts in the text. Also, a Report on a preglacial outlet for Lake Erie, by J. W. Spencer. With two maps of the Lake region. 8°, pp. 406, 1881. Price \$1 17, postage \$0 18.

R. Report on McKEAN county, and its geological connections with Cameron, Elk, and Forest counties, by C. A. Ashburner. With 33 page plates of vertical and columnar sections, pictures of Rock city and Olean conglomerate, Wilcox and Kane spouting wells, map of Howard Hill coal field, &c., and an atlas of 8 sheets. 8°, pp. 371, 1880. Price of Volume and Atlas together \$1 70, postage \$0 22.

(**R.**) ATLAS for McKean county of 8 sheets:—Colored geological county map; three topographical maps; of Buffalo Coal Company tract, Alton coal basin, and Potato Creek coal basin; map of McKean oil district; one sheet of columnar sections between Bradford and Ridgway; and 2 diagram sheets of the Well account and Production account in the Bradford district. (*Only sold with Report R.*)

R 2. Part II, Report on township geology of CAMERON, ELK AND FOREST counties, by C. A. Ashburner. (*To appear about March 15, 1885.*)

(**R 2.**) ATLAS for CAMERON, ELK AND FOREST counties, of 11 sheets (*published November, 1884, in advance of the report*):—3 colored geological county maps; 1 anticlinal and synclinal map; 1 topographical map McKean county; 2 tract maps Forest and Elk counties; 1 map Straight Creek coal basin; 2 sheets oil well sections; and 1 sheet coal sections. Price \$0 65, postage \$0 08.

V. Report on N. BUTLER county; and (Part 2) special report on the Beaver and Shenango river coal measures, by H. M. Chance. With a colored geological map of N. Butler; a contour local map around Parker; a map of the anticlinal rolls in the 6th basin; a chart of the Beaver and Shenango rivers; profile section from Homewood to Sharon; Oil well records and surface sections; and 154 cuts in the text. 8°, pp. 248, 1879. Price \$0 70, postage \$0 15.

V 2. Report on CLARION county, by H. M. Chance. With a colored geological county map; a map of the anticlinals and oil-belt; a contoured map of the old river channel at Parker; 4 page plates, and 83 cuts in the text. 8°, pp. 232, 1880. Price \$0 43, postage \$0 12.

For the coal basins of BRADFORD and TIOGA counties see report G.

For the coal basins of LYCOMING and SULLIVAN see report G 2.

For the coal basins of POTTER county see G 3.

For the coal basins of CLINTON county see G 4.

For the coal in WAYNE county see G 5.

For the East Broad Top coal basin in HUNTINGDON county see F.

For the mountain coals in BLAIR county see T.

For the Broad Top coal measures in BEDFORD and FULTON counties see T 2.

For the coal basins in CENTRE county see T 4.

For coal analyses, see M, M 2, M 3.

For classification of coals, see in M 2.

For coal plants, see P, P 2.

For fossil crustaceans in coal slate, see P 3.

PETROLEUM AND GAS.

See reports I, I 2, I 3, I 4, and J under Bituminous Coal Fields.

See L, for the Pittsburgh gas well, and the use of gas in the iron manufacture.

See Q, Q 2, Q 3, Q 4, for references to oil rocks in Beaver, Lawrence, Mercer, Crawford, Erie, and S. Butler counties.

See K for the Dunkard creek oil wells of Greene county.

See R, R 2, for descriptions of oil rocks in McKean, Elk, and Forest counties.

See V, V 2, for notes on the oil rocks of N. Butler, and Clarion counties.

See H 2 for oil boring at Cherry Tree, Cambria county.

See G 5 for oil boring in Wayne county.

NORTH-EASTERN AND MIDDLE PENNSYLVANIA.

(*Palæozoic formations from the Coal down.*)

D. First report on LEHIGH county iron mines, by F. Prime. With a contour line map of the ore region, and 8 page plates. 8°, pp. 73, 1875. Price in paper \$0 50, postage \$0 04.

D 2. Second report on LEHIGH county iron mines, by F. Prime. With a colored geological contour line map of the iron region, (in 4 sheets,) a colored geological contour line map of the Ironton mines, 4 double page lithograph pictures of Limestone quarries, and one page plate of *Monocraterion*. 8°, pp. 99, 1878. Price \$1 00, postage \$0 12.

D 3. Vol. 1. Report on LEHIGH and NORTHAMPTON counties. Introduction, by J. P. Lesley; Slate belt, by R. A. Saunders; Limestone belt and iron mines, by F. Prime; South mountain rocks, by F. Prime and C. E. Hall. With 3 lithograph pictures of quarries, 4 pictures of triangulation stations, 14 page plates of sections, and an atlas of maps. 8°, pp. 283, 1883. Price \$0 65, postage \$0 13. (*Note, for atlas see below.*)

D 3. Vol. II, part I. Report on BERKS county, (*South Mountain belt,*) by E. V. D'Invilliers. With 10 page plates of sections and Indian relics, and 3 pictures of rock exposures. 8°, pp. 441, 1883. Price \$0 55, postage \$0 18. (*Note, for atlas see below, as before.*)

(**D 3.**) ATLAS: One colored geological map of *Lehigh* and Northampton counties, (*one sheet*); one colored geological contour line map of Southern Northampton county, (*six sheets*); a contour line map of the mountains from the Delaware to the Schuylkill, (*eighteen sheets*); a colored geological contour line index map to the 22 sheets, (*one sheet*); and 4 sheets of maps of Iron mines. Price of Atlas \$2 80, postage \$0 17.

D 5. ATLAS of colored geological county maps of CUMBERLAND, FRANKLIN, and Adams, (*three sheets*); and first instalment of contour line map of the South mountains, Sheets A 1, A 2, B 1, B 2, (*four sheets*), by A. E. Lehman. Price of Atlas \$1 25, postage \$0 08.

F. Report on the JUNIATA RIVER district in MIFFLIN, SNYDER and HUNTINGDON counties, by J. H. Dewees; and on the Aughwick valley and East Broad Top region in HUNTINGDON county, by C. A. Ashburner. With colored geological maps of East Broad Top R. R. and Orbisonia vicinity (2 sheets); Threc Springs map and section (2 sheets); Sideling Hill creek map and section (2 sheets); and Isometric projection at Three Springs (1 sheet); six folded cross sections and 22 page plates of local maps, and columnar sections. 8°, pp. 305, 1878. Price \$2 55, postage \$0 20.

F 2. Report on PERRY county, (*Part I, geology*), by E. W. Claypole. With two colored geological maps of the county; 17 geological outline township maps as page plates; and 30 page plate cross and columnar sections. 8°, pp. , 1884. Price \$, postage, . (*In press, October, 1884.*)

G. Report on BRADFORD and TIOGA counties, by A. Sherwood; Report on their coal fields (including forks of Pine creek in Potter county), by F. Platt; Report on the COKING of bituminous coal, by J. Fulton. (*See L above.*) With 2 colored geological county maps, 3 page plates, and 35 cuts in the text. 8°, pp. 271, 1878. Price \$1 00, postage \$0 12.

G 2. Report on LYCOMING and SULLIVAN counties: field notes by A. Sherwood; coal basins by F. Platt. With 2 colored geological county maps (of Lycoming and Sullivan), a topographical map (in two sheets) of the Little Pine creek coal basin, and 24 page plates of columnar sections. 8°, pp. 268, 1880. Price \$1 06, postage \$0 14.

G 3. Report on POTTER county, by A. Sherwood. Report on its COAL FIELDS, by F. Platt. With a colored geological county map, 2 folded plates, and 2 page plates of sections. 8°, pp. 121, 1880. Price \$0 58, postage \$0 08.

G 4. Report on CLINTON county, by H. M. Chance; including a description of the Renovo coal basin, by C. A. Ashburner; and notes on the Tangascootac coal basin, by F. Platt. With a colored geological county map, 1 sheet of sections, local Renovo map, 6 page plates, and 21 sections in the text. 8°, pp. 183, 1880. Price \$1 05, postage \$0 12.

G 5. Report on SUSQUEHANNA and WAYNE counties, by I. C. White. With a colored geological map of the two counties, and 58 cuts in the text. 8°, pp. 243, 1881. Price \$0 70, postage \$0 12.

G 6. Report on PIKE and MONROE counties, by I. C. White. With two colored geological county maps, (1 sheet Pike and Monroe, and 1 sheet Wyoming,) a map of glacial scratches, and 7 small sections. Report on the Delaware and Lehigh water gaps, with two contoured maps and five sections of the gaps, by H. M. Chance. 8°, pp. 407, 1882. Price \$1 15, postage \$0 15.

G 7. Report on WYOMING, LACKAWANNA, LUZERNE, COLUMBIA, MONTGOMERY, and NORTHUMBERLAND counties, (*i. e.* the parts lying *outside* of the anthracite coal fields,) by I. C. White. With a colored geological map of these counties, (in two sheets,) and 31 page plates in the text. 8°, 464, 1883. Price \$0 85 and postage \$0 20. (*Note.—The colored geological map of WYOMING county is published in G 6.*)

S. Report on the Seven mountains in HUNTINGDON, UNION, AND SNYDER counties, by C. E. Billin. With a colored geological contour line map of the mountains (1 sheet); maps of the fossil ore outcrops, and Stone mountain fault; and colored geological cross sections, (2 sheets.) 8°, pp. , 1885. Price \$, postage \$. (*In press.*)

T. Report on Blair county, by F. Platt. With 35 cuts in the text, and an Atlas of maps and sections, (*See below.*) 8°, pp. 311, 1881. Price *with atlas* \$4 55, postage \$0 28.

(**T.**) ATLAS of colored geological contour line map of Morrison's cove, Canoe valley, Sinking valley, and country west to the Cambria county line, (14 sheets); Index map of the same (1 sheet); colored sections, (2 sheets.) 8°, 1881. (*Note.—The Atlas is not sold separately.*)

T 2. Report on BEDFORD and FULTON counties, by J. J. Stevenson. With two colored geological maps of the two counties. 8°, pp. 382, 1882. Price \$0 80, postage \$0 20.

T 3. Report on HUNTINGDON county, by I. C. White. With a colored geological map of the county; and numerous sections. 8°, pp. , 1885. Price \$, postage \$. (*In press.*)

T 4. Report on CENTRE county, by E. V. D'Invilliers; also, special report by A. L. Ewing; and extracts from report to Lyon, Shorb & Co., by J. P. Lesley. With a colored geological map of the county, 13 page plates of local maps and sections, and 15 cuts in the text. 8°, pp. 464, 1884. Price \$0 80, postage \$0 19.

See also report on the line of the Terminal Moraine, Z.

SOUTH-EASTERN PENNSYLVANIA.

C. Report on YORK and ADAMS counties, by P. Frazer. With one folded map of a belt of York county through York and Hanover, 6 folded cross sections, and two page plate, microscopic slices of dolerite. 8°, pp. 198, 1876. Price in paper \$0 85, postage \$0 10. (*Note.—The colored geological county map of YORK is published in the ATLAS to C 3.*)

C 2. Report on YORK and ADAMS counties, (South Mountain rocks, iron ores, &c.,) by P. Frazer. With one general map of the district; 10 folded cross sections; and 5 page plates. 8°, pp. 400, 1877. Price \$1 25, postage \$0 12. (*Note.—The colored geological county maps of ADAMS is published in D 5.*)

C 3. Report on Lancaster county by P. Frazer. With nine double page lithographic views of slate quarries, and Indian-pictured rocks; one plate of impressions on slate and one page plate microscopic section of trap; and an atlas. 8°, pp. 350, 1880. Price of report and atlas \$2 20, postage \$0 25.

(**C 3.**) ATLAS of 13 sheets:—Colored geological map of YORK county; colored geological map of LANCASTER county; Susquehanna river section (Sheets 1, 1A, 2, 2A, 3, 4); Lancaster section; Pequea section; Muddy run section; Chestnut-hill mines; Gap nickel mine. (*Note.—Atlas sold only with report.*)

C 4. Report on CHESTER county; General description, pp. 214, by J. P. Lesley; Field notes in the townships, pp. 215–354, by P. Frazer. With a colored geological county map, a photographic view of contorted schists, and 12 page plates. 8°, pp. 394, 1883. Price \$0 75, postage \$0 18.

C 5. Report on DELAWARE county, by C. E. Hall. With a colored geological county map; a contour line map around Media; 30 photographic page-plate views of granite quarries, Kaolin pits, &c., and 4 page plates of altered micas. 8°, pp. , 1885. Price \$, postage \$. (*Partly printed; but publication delayed.*)

C 6. Report on PHILADELPHIA and the southern parts of MONTGOMERY and BUCKS counties, by C. E. Hall. With a colored geological map of the belt of country between Trenton and Delaware county (in 3 sheets); a sheet of colored cross-sections, and 24 cuts in the text. 8°, pp. 145, 1882. Price \$1 65, postage \$0 13.

E. Part I of (historical introduction to) a report on the AZOIC rocks, by T. S. Hunt. 8°, pp. 253, 1878. Price \$0 48, postage \$0 12.

VOLUMES PUBLISHED AND ON SALE, MARCH 1, 1885.

A.	D 2.	H 7.	P atlas.
A 2.	D 3, Vol. I.	I.	P 2.
AC.	D 3, Vol. II, part I.	I 2.	P 3.
AC atlas.	D 3 atlas.	I 3.	Q.
AA.	D 5 atlas.	I 3 atlas.	Q 2.
AA atlas (1.)	E.	I 4.	Q 3.
AA atl s (2.)	F.	J.	Q 4.
Grand atlas. Div.	G.	K.	R.
II Pt. I.	G 2.	K 2.	R atlas.
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I, Pt. I.	G 4.	K 4, Pt. 1.	T.
B.	G 5.	L.	T atlas.
B 2, (exhausted.)	G 6.	M.	T 2.
C.	G 7.	M 2.	T 4.
C 2.	H.	M 3.	V.
C 3.	H 2.	N.	V 2.
C 3 atlas.	H 3.	O.	Z.
C 4.	H 4.	O 2.	—
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D.	H 6.	P, Vol. III.	

Other reports of the Survey are in the hands of the State Printer and will soon be published.

SINGLE SHEETS ANTHRACITE REGION.

In order to make the results of the survey in this region immediately available, 200 copies of each sheet (size 26×32 inches) will be sold singly as soon as printed. Remittances* for the same and communications respecting the Anthracite Survey should be addressed to

CHAS. A. ASHBURNER, *Geologist in Charge,*
907 Walnut street, Philadelphia.

General Map Anthracite Coal Fields, scale $\frac{1}{30000}$ ths of nature (about $4\frac{1}{2}$ miles to one inch) showing the outlines of the coal basins and outlets to market; with list of working mines during 1882 and 1883 with their annual production,

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and East Mahanoy City, Price \$0 22
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MAUCH CHUNK SHEET ⁴ , Southern Field, in vicinity of Mauch Chunk and Nesquehoning. (See foot-note, page 4.)	
LANSFORD SHEET ⁴ , Southern Field, in vicinity of Lansford and Summit Hill. (See foot-note, page 4.)	
TAMAQUA SHEET ⁴ , Southern Field, in the vicinity of Coaldale and Tamaqua. (See foot-note, page 4.)	

Topographical Sheets, scale 1600 feet to 1 inch $\frac{1}{13200}$ ths of nature, showing surface topography in contour curve lines 10 feet vertically apart.

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WESTERN MIDDLE FIELD ¹	{ City,	Price \$0 11
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WESTERN MIDDLE FIELD ¹	{ ton, Frackville, Girardville, &c.,	Price \$0 11
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WESTERN MIDDLE FIELD ¹	{ Mt. Carmel, &c,	Price \$0 11
SHEET No. I,	{ in vicinity of Mauch Chunk. Lans-	
SOUTHERN FIELD ⁴ ,	{ ford, Tamaqua, &c. (See foot-note, page 4.)	

1. Contained in Atlas W. M. A. F. Part I.

2. Contained in Atlas N. A. F. Part I.

3. Contained in Atlas E. M. A. F. Part I.

4. Contained in Atlas S. A. F. Part I.

Cross Section Sheets contain vertical cross sections, scale 400 feet to 1 inch, $\frac{1}{4800}$ ths of nature; reference maps scale 1 mile to 1 inch, $\frac{1}{63360}$ ths of nature; &c.

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SHEET No. II, WESTERN MIDDLE FIELD ¹	{ 5 sections through Indian Ridge, Plank Ridge, Knickerbocker, Shenandoah City, Coal Run, St. Nicholas, Boston Run, Lehigh No. 3, Packer Nos. 2 and 4, William Penn, Bear Ridge Nos. 1 and 2, Stanton, Draper, Colorado, Lawrence, and Ellangowan collieries, Price \$0 09
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SHEET Nos. I, II and III, SOUTHERN FIELD ⁴ ,	{ 25 sections ; through collieries L. C. and Nav. Co., between Mauch Chunk and Tamaqua, (See foot-note, page 4.)	

Columnar Section Sheets contain sections showing thickness and character of coal measures, scale 40 feet to 1 inch, of coal beds scale 10 feet to 1 inch, &c., &c.

SHEET No. I, NORTHERN FIELD ² ,	{ contains sections at Bennett, Pine Ridge, Enterprise, Henry, Wyoming, Oakwood, Prospect, Conynghan, Baltimore, Diamond, Hollenback, Laurel Run, Mineral Spring, and Red Ash collieries,	Price \$0 11
SHEET No. II, NORTHERN FIELD ² ,	{ contains sections at Dorrance, Empire Nos. 2 and 4, Kidder, Stanton, South Wilkes Barre, Franklin, Sugar Notch, Ashley No. 6, Hillman Vein, &c., collieries . .	Price \$0 11
SHEET No. III, NORTHERN FIELD ² ,	{ contains sections at Maltby, Forty Fort, Harry E, Black Diamond, East Boston, Kingston, Mill Hollow, Plymouth, Boston, &c., collieries,	Price \$0 11
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